DWR
CCTAG
Scenarios Subgroup Meeting

March 21, 2014

California Department of Water Resources
Climate Change Technical Advisory Subgroup Meeting

March 21, 2014
10:00 am-12:00 pm
DWR Fishbowl Conf Room, 2nd floor, Bonderson

https://resources.webex.com/resources/j.php?ED=229264172&UID=491358787&RT=MiM0

Provide your phone number when you join the meeting to receive a call back. Alternatively, you can call:
Call-in toll-free number (Verizon): 1-877-923-1522 (US)
Host access code: 679 474 0
Attendee access code: 295 056 7

AGENDA:

Update on Model Screening/Culling
Cayan

Discussion: All **CC and Extreme Conditions Analysis (see spreadsheet)**
Stress test scenarios (see spreadsheet)
John Gyakum Drought paper

Discussion: Downscaling (see LOCA CEC paper and Gutman link, from Cayan)
All

Recommendations paper (Journal article and appendices for DWR only)
Lynn, Cayan

Full CCTAG 4/3 subgroup agenda item
Lynn, All

11:30 am Sacramento-San Joaquin Basin Study
Tapash Das, PhD. and Armin Munevar, PhD. CH2MHill / Basin Study

Climate Change and Extreme Conditions Analysis in DWR Planning Activities

Program	Periodicity	Capability/Applicability of Conducting General Climate Change Impacts Analysis	Extreme Conditions Analysis Conducted to Date	Capability/Applicability of Conducting Extreme Conditions Analysis	Agency	Reviewer/ Expert
California Water Plan Update	5-years	Wide capability and applicability, but results must be communicated on a statewide and regional basis	Analysis of historical hydrology adjusted with climatological trends, repeat of historical hydrology with projected temperatures, and extended drought conditions ('76,'77, '77), and ensemble informed scenarios.	Wide capability and applicability, but results must be communicated on a statewide and regional basis	DWR	Jurcich
Periodic Climate Change specific studies	Varies	Wide capability and applicability	Analysis of historical hydrology adjusted with climatological trends	Wide capability and applicability	DWR	Chung
Environmental Impacts Analysis under CEQA*	None	Limited capability, large projects may evaluate reasonably expected future condtions.	None	Limited applicability, this type of analysis is not explicitly required by CEQA or NEPA	DWR	Schwarz
SWP Delivery Reliability Report	2-years	Wide capability and applicability	Analysis of historical hydrology adjusted with climatological trends	Wide capability and applicability	DWR	Chung
Environmental Impacts Analysis under FERC Relicensing	50-years	Limited, this type of analysis is not explicitly required by FERC	None	Limited, this type of analysis is not explicitly required by FERC	DWR	Craddock
Environmental Impacts Analysis for Project Operations (SWP and CVP)	None	Moderate capability, past analysis have explored a limited selection of scenarios	None	This type of analysis would not typically be undertaken	DWR/USBR	Chung

Programs not Performed by DWR but which may be influenced by DWR

Central Valley Flood Protection Planning	5-years	Limited applicability, flood protection vulnerabilities and impacts are predominently driven by extreme events	Pilot study of Theshold Analysis (flood)	In Development	DWR staff under auspices of CVFPB	Anderson
Urban Water Management Planning	5-years	Limited, this type of analysis is not explicitly required of UWMP	Worst 3-year drought on record	Varies by local water district	Local water districts	
Agricultural Water Management Planning	5-years	Required to "include an analysis, based upon available information, of the effect of climate change on future water supplies" ([Water Code §10826 (c)]). Interpretation of this requirement left to DWR and AWMP groups. Capacity to conduct analysis varies between AWMPs.	No requirement	Varies by local water district	Local agricultural water suppliers	
Integrated Regional Water Management Planning	Varies-Depends on Funding cycles	Required to evaluate "the adaptability to climate change of water management systems in the region". Interpretation of this requirement left to DWR and RWMGs. Capacity to conduct analysis varies between RWMGs.	No requirement	Varies by RWMG	Regional Water Mangement Groups	Billington
Regional Flood Management Planning	No requirement	Limited, this type of analysis is not a focus of the funding	Rely on existing studies, no new analysis	Limited, this type of analysis is not a focus of the funding	Regional Flood Management Groups	Conrad
Groundwater Management Planning	No requirement	Limited, this type of analysis is required in legislation and not a focus of the funding	No requirement	Limited, this type of analysis is not a focus of the funding	Local Groundwater Management Groups	

STRESS TEST SCENARIOS (prior to comments)

Drought

Duration	**Severity**	**Extent**	**Recurance**		
1-3 years	Paleo/extreme	Statewide	3-7 years		
3-7 years	Paleo-Historic	Statewide- Westwide	5-10 years		
10-20 years	Paleo-Historic	Statewide- Westwide	50 years		
Paleo drought	Paleo	Westwide	-		
Increase in variability of precipitation 20 percent beyond historical levels					

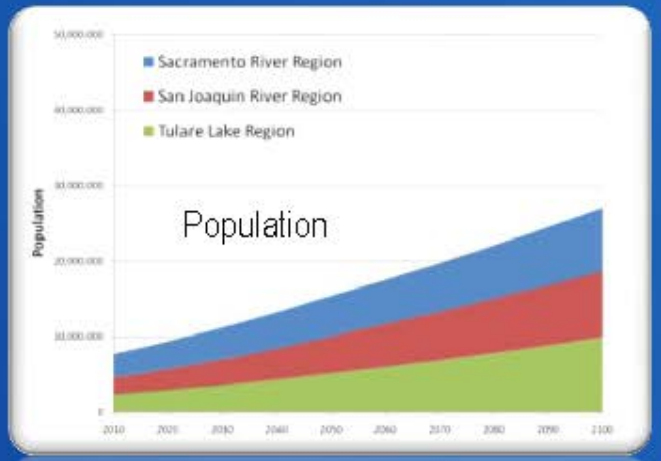
Wet/Flood

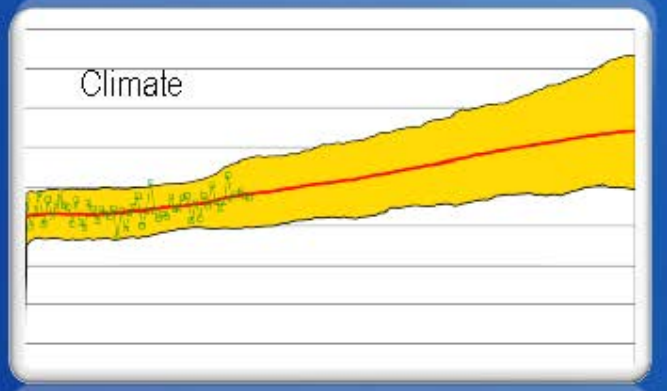
Sacramento-San Joaquin Basins Study (SSJBS)

Purpose: to conduct a comprehensive assessment to define current and future imbalances in water supply and demand, evaluate the effects of future changes in climate and socioeconomic factors on water supply and demand, perform a system risk and reliability assessment of the Baseline system to define current and future imbalances in water supply and demand under different potential future conditions, and to develop and analyze adaptation and mitigation strategies to resolve those imbalances.

Representation of Climate and Socioeconomic Uncertainty

- 18 scenarios bracket the range of uncertainty:
  - One future socioeconomic conditions
    - Current Trends
  - 18 future climate conditions
    - 1 reflecting historical conditions without climate change
    - 5 Ensemble-Informed future climate scenarios
    - 12 Downscaled CAT12 climate projections



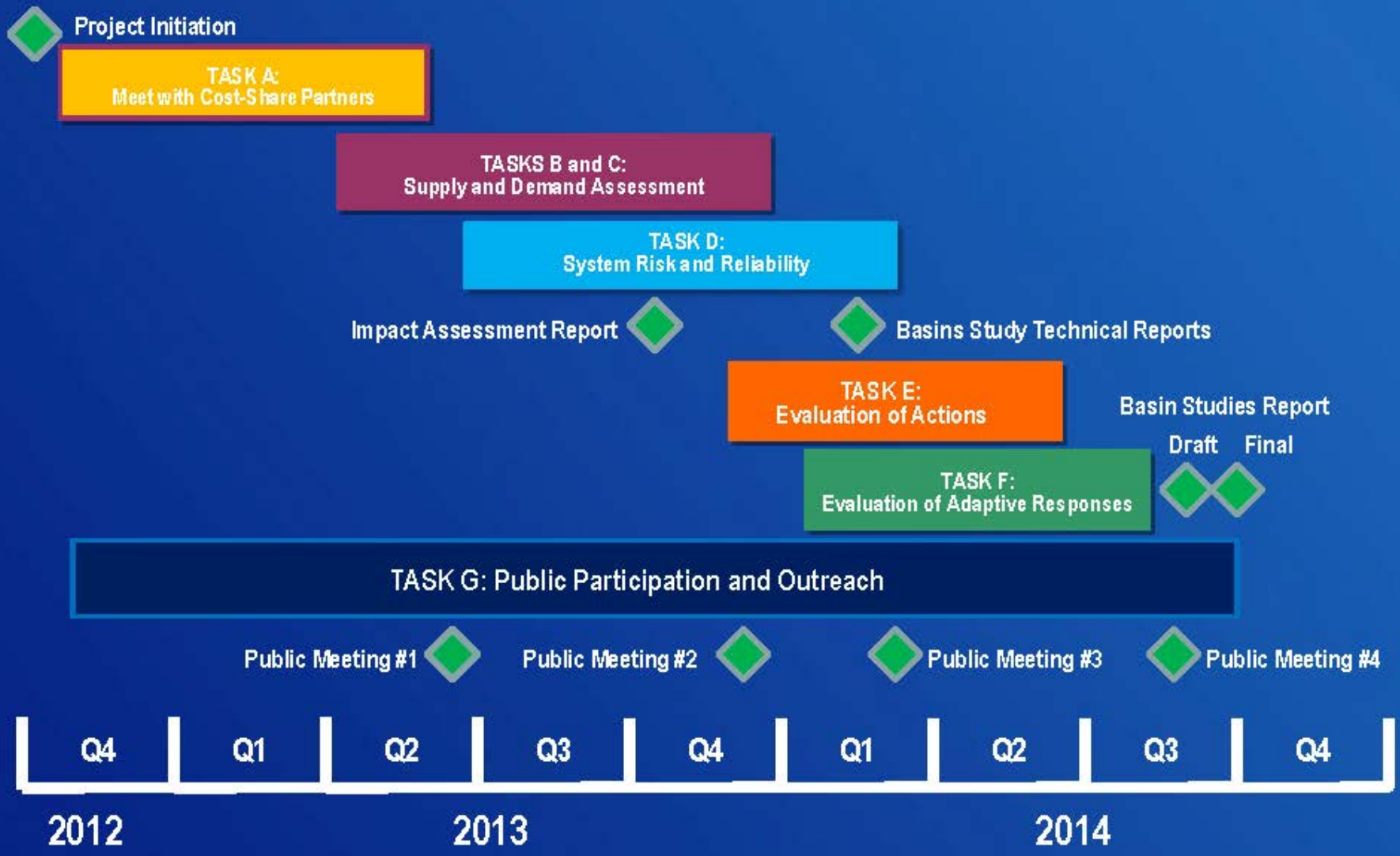


RECLAMATION

Methodology to Incorporate Regional Climate Change

- Future Climate Projections
  - Most recent projections from PCMDI CMIP5 archive (IPCC AR5 Report)
  - Ensemble-Informed Transient Climate Scenarios
  - Representative Individual Downscaled GCM Projections
    - Equivalent GCMs as used in Phase 1 climate impact assessment
- Paleohydrology
  - Reconstructions developed by Meko et al.
  - Update with available on-going studies (Meko and Woodhouse)

Basins Study Schedule



RECLAMATION

THANK YOU!

4/3 Full CCTAG

4/18 Subgroup